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Sheang

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[54] **TOY SPHERE**

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[51] **Int. Cl.**[6] **A63H 29/00**

[52] **U.S. Cl.** **446/458**; 446/443

[58] **Field of Search** 446/458, 456, 462, 437, 446/443

[56] **References Cited**

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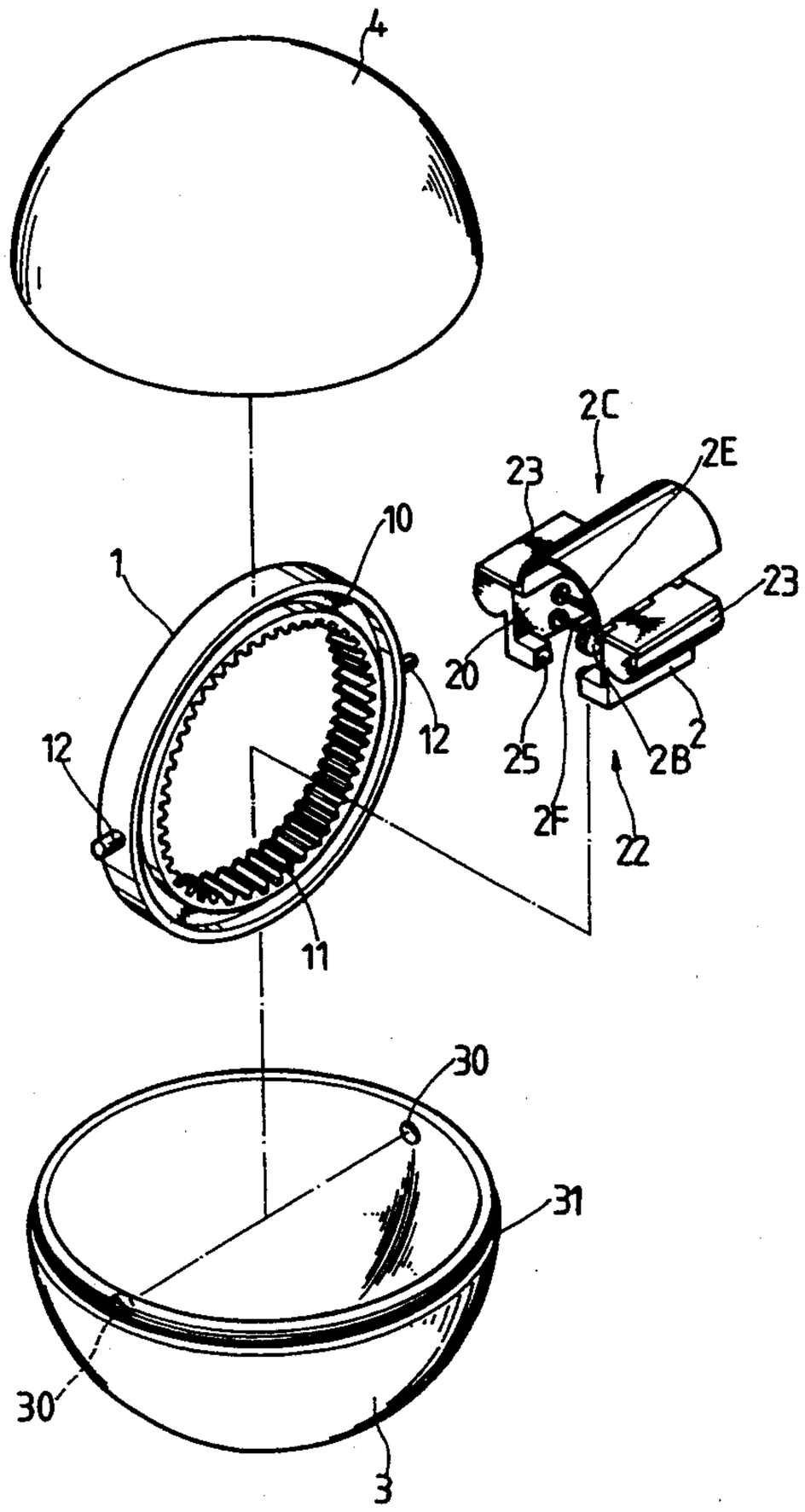
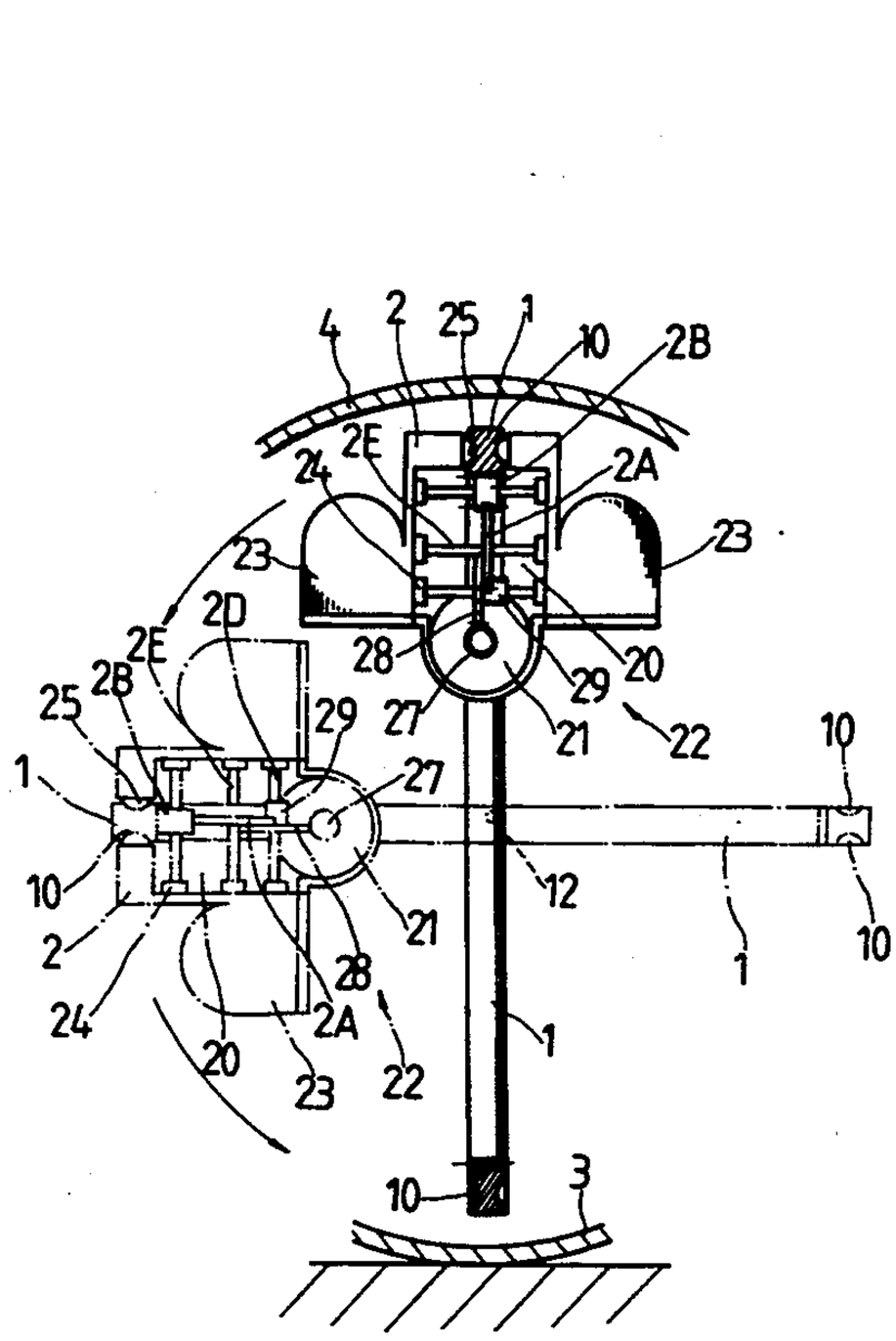
Attorney, Agent, or Firm—Alfred Lei

[57] **ABSTRACT**

This invention relates to a toy sphere and in particular to one including an annular member provided with a circular groove at both sides, a plurality of internal gear teeth at an inner surface, and two opposite eccentric pins at an outer surface, a power seat threadedly engaged with the internal gear teeth of the annular member and having a motor electrically connected with batteries, an upper hemispherical housing having internal threads, a lower hemispherical housing having external threads engageable with the internal threads of the upper hemispherical and having two aligned holes engaged with the two opposite eccentric pins of the annular member.

1 Claim, 8 Drawing Sheets





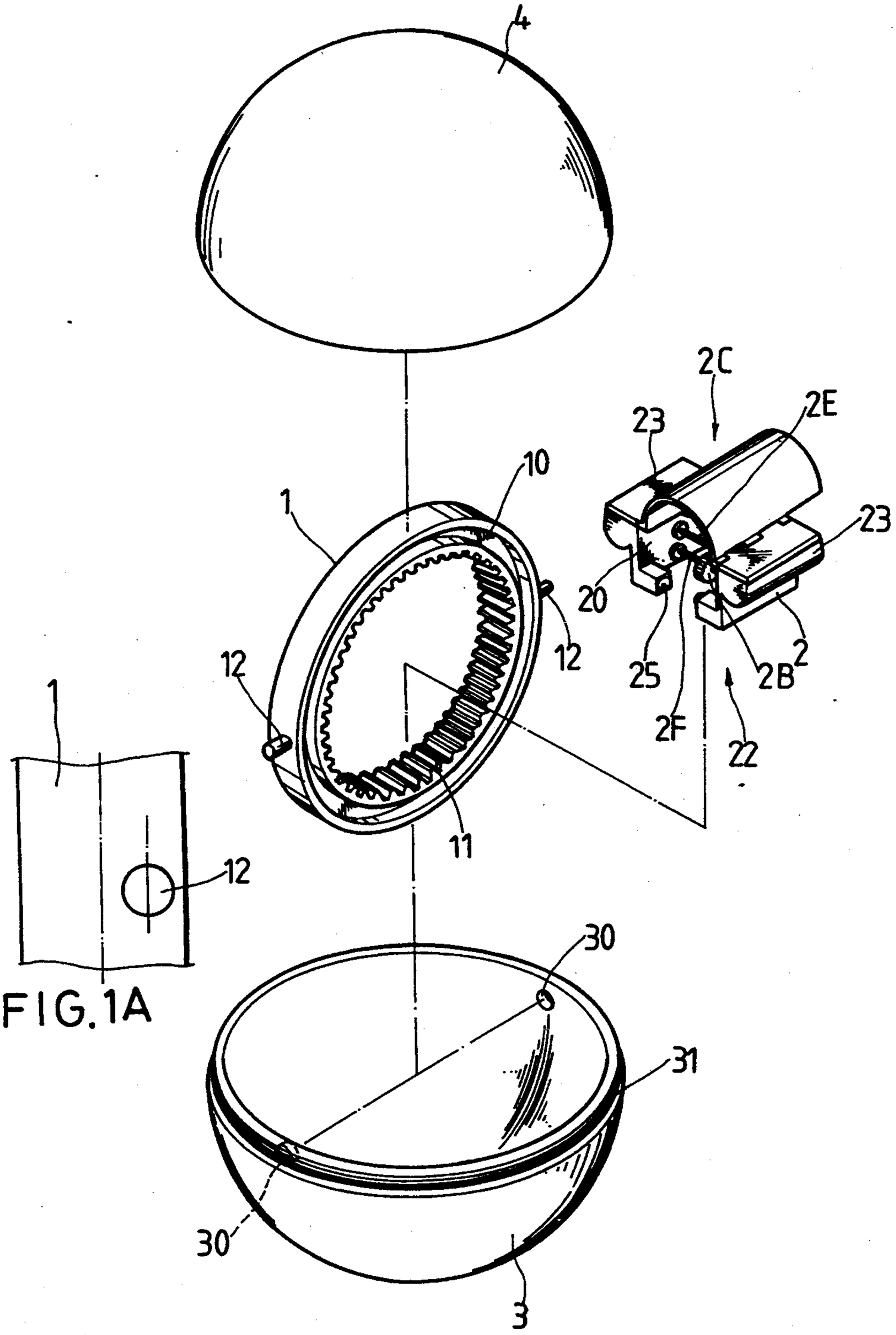
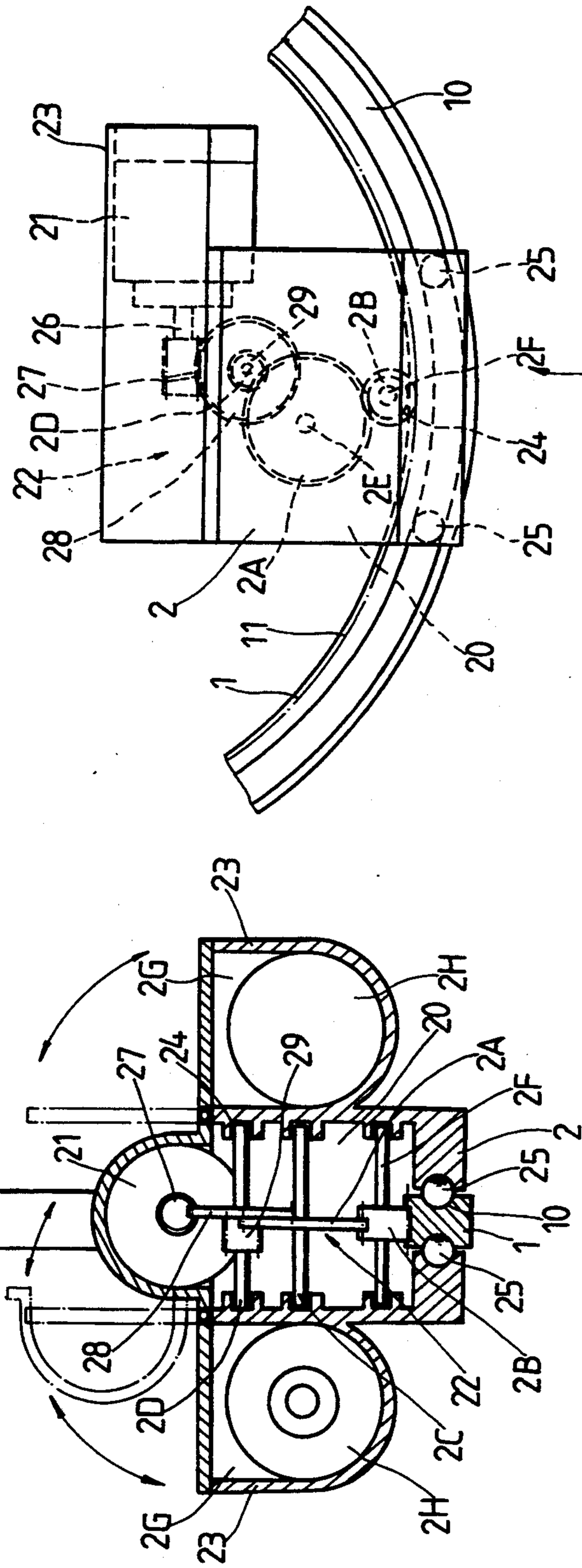


FIG. 1A

FIG. 1


23
21
26
27
2D
22
28
29
2B
2F
2C
24
25
2E
2A
2
11
1
10
20
2G
2H
FIG. 2B
FIG. 2A

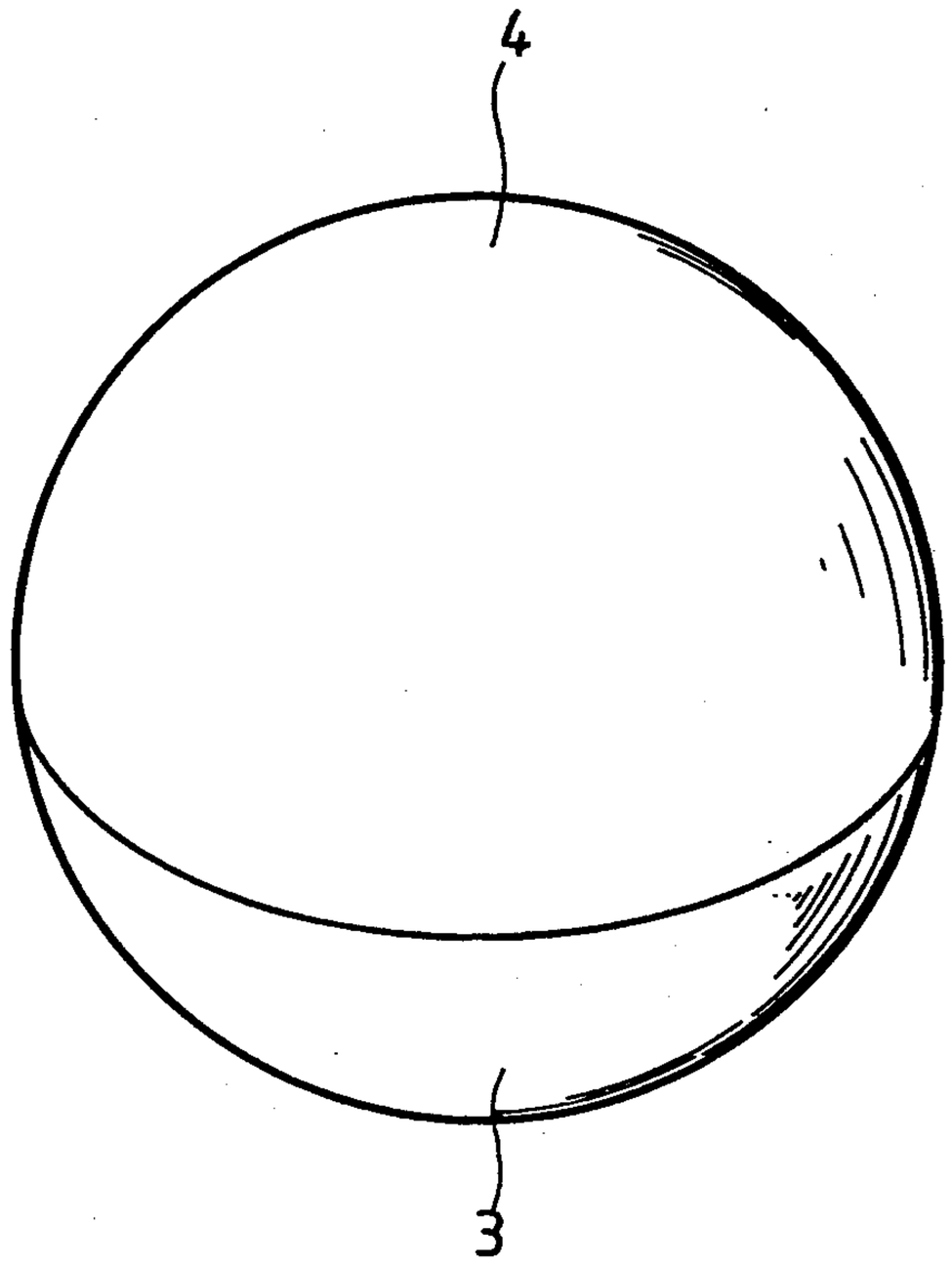


FIG. 3

FIG. 4

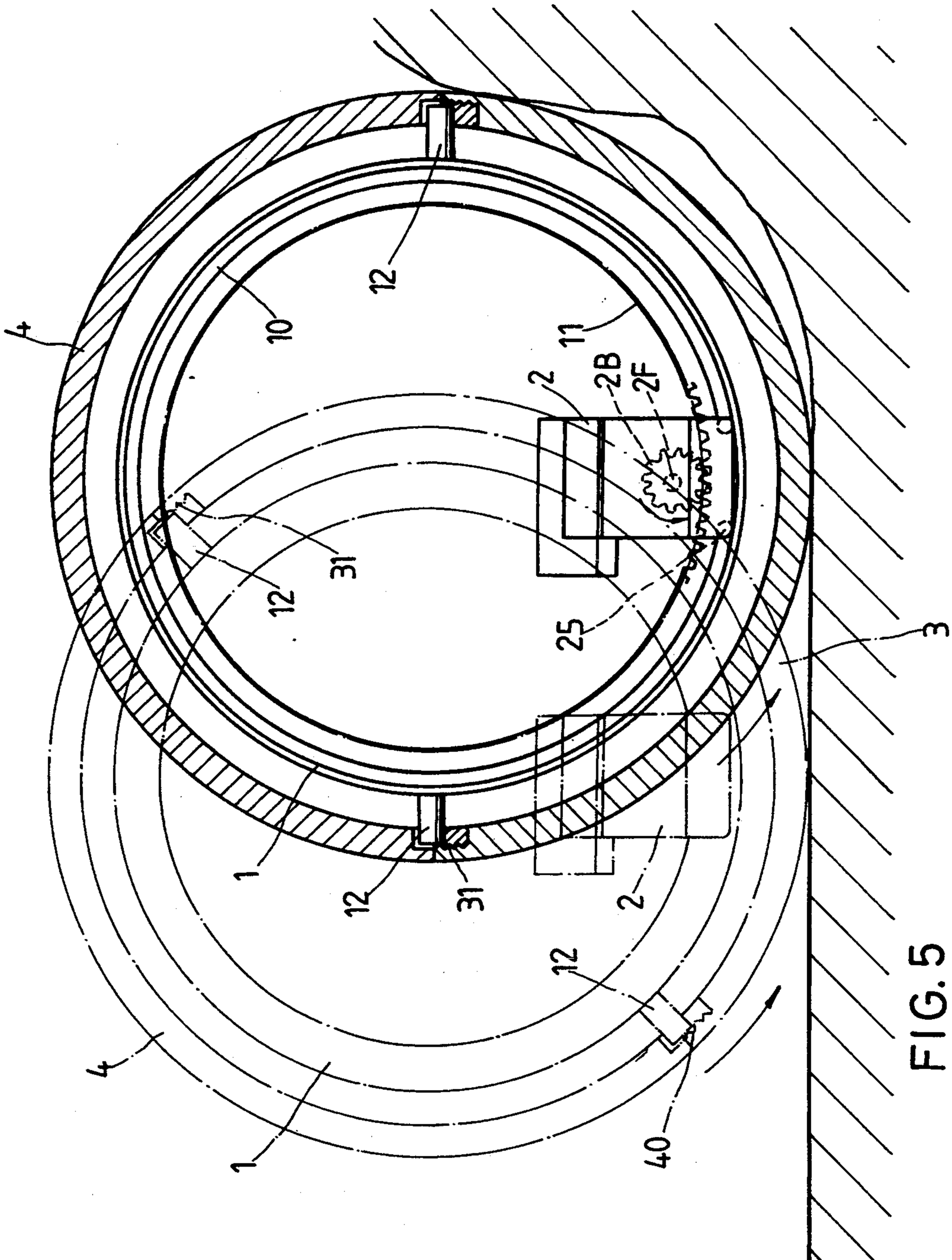


FIG. 5

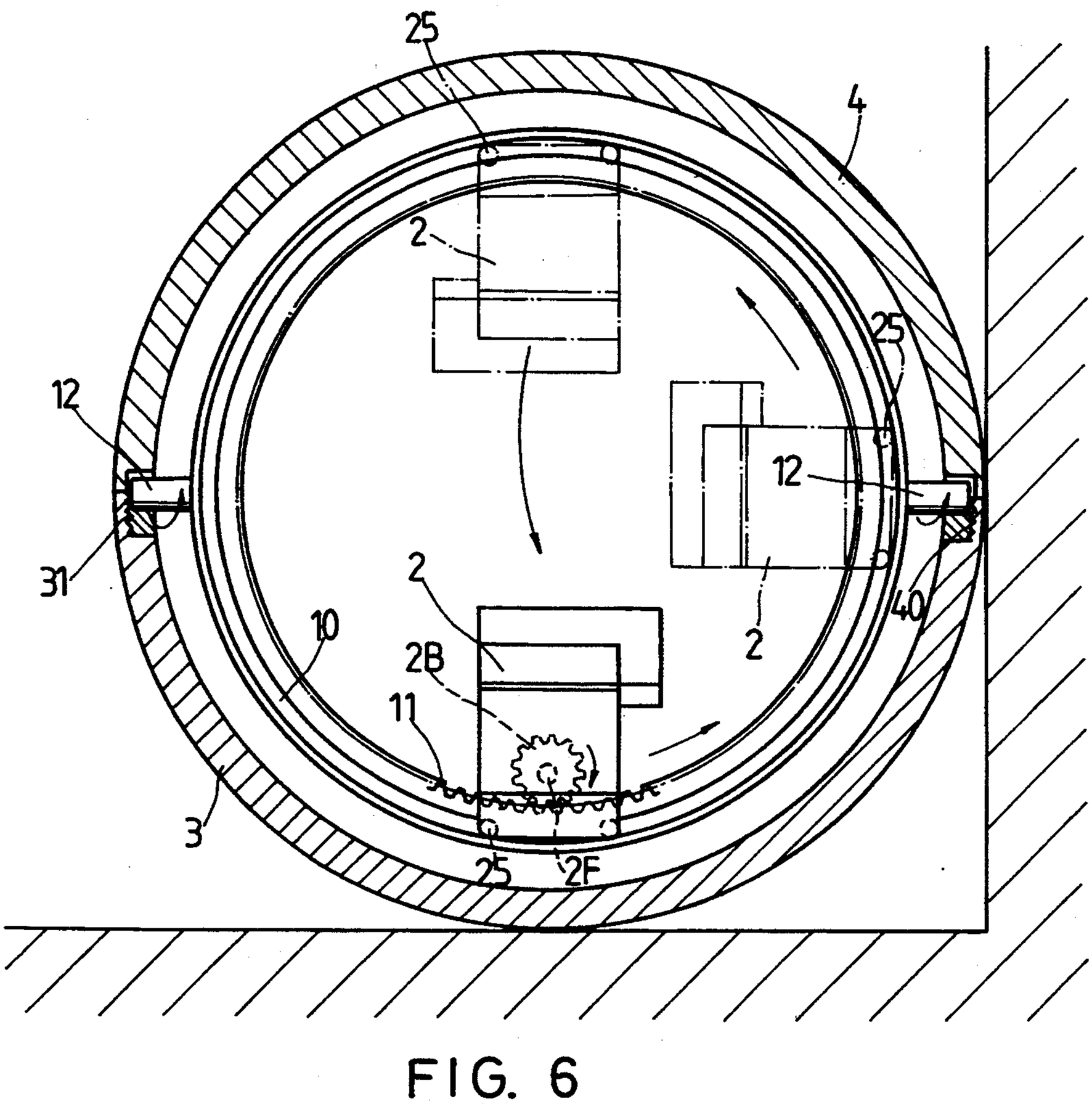


FIG. 6

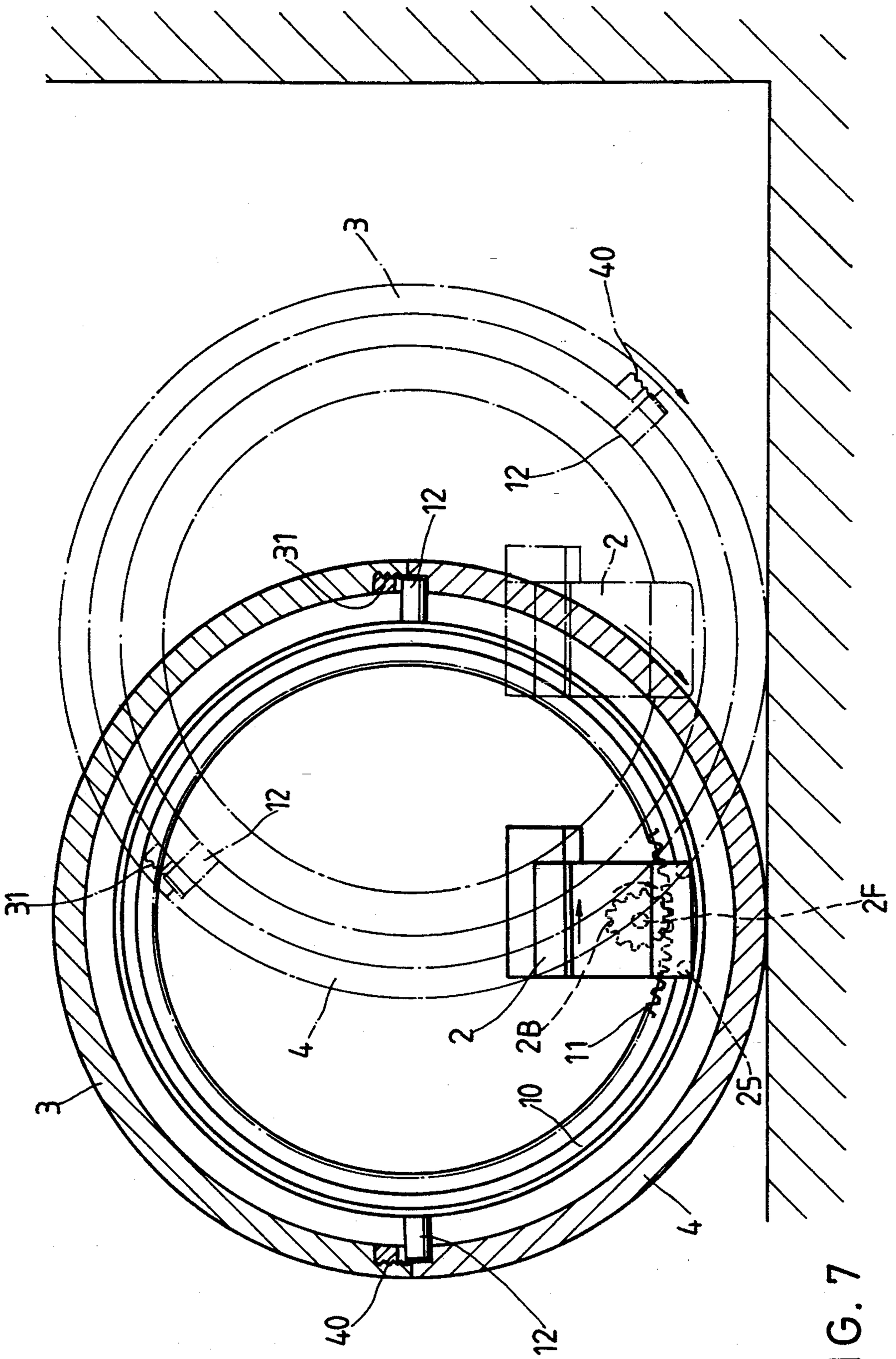


FIG. 7

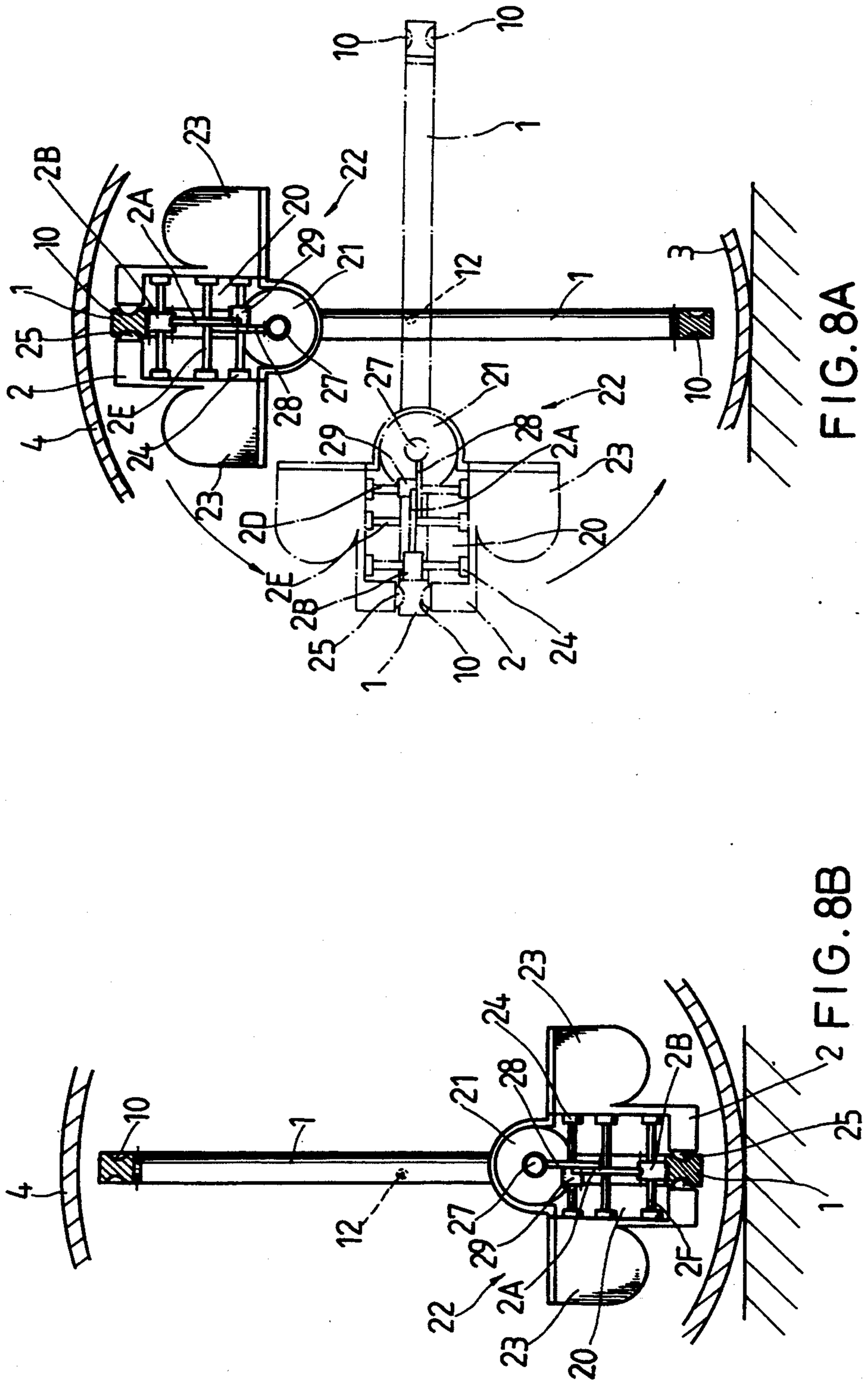

10
10
1
23
2B
2A
22
20
29
21
12
1
3
10
1
25
2
2E
4
24
28
27
27
21
22
28
29
2A
23
23
2D
20
2E
2B
25
1
10
2
24

FIG.8A

24
23
4
10
1
12
21
28
2B
2
25
1
27
29
2F
22
2A
23
20

FIG.8B

TOY SPHERE

BACKGROUND OF THE INVENTION

It has been found that the conventional toy ball is simply a sphere which remains standstill when no external force is applied thereto hence making it monotonous and uninteresting.

Therefore, it is an object of the present invention to provide an improved toy sphere which may go by itself.

SUMMARY OF THE INVENTION

This invention relates to a toy sphere.

It is the primary object of the present invention to provide a toy sphere which can automatically rotate by itself.

It is another object of the present invention to provide a toy sphere which can automatically turn over when meeting with an obstacle.

It is still another object of the present invention to provide a toy sphere which is an interesting and attractive.

It is still another object of the present invention to provide a toy sphere which is simple in construction.

It is a further object of the present invention to provide a toy sphere which is easy to manufacture.

Other objects and merits and a fuller understanding of the present invention will be obtained by those having ordinary skill in the art when the following detailed description of the preferred embodiment is read in conjunction with the accompanying drawings wherein like numerals refer to like or similar parts.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an exploded view of the present invention;

FIG. **1A** is an enlarged fragmentary view of the present invention;

FIG. **2A** is a sectional view of the power seat;

FIG. **2B** is a side view of the power seat;

FIG. **3** is a perspective view of the present invention;

FIGS. **4** and **5** and show that the present invention meets with a block;

FIG. **6** shows the lift of the power seat;

FIG. **7** shows the way how the present invention is turned over when meeting an obstacle;

FIGS. **8A** and **8B** shows the working principle of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

With reference to the drawings and in particular to FIGS. **1** through **3** thereof, the toy sphere according to the present invention mainly comprises an annular member **1**, a power seat **2**, a lower hemispherical housing **3**, and an upper hemispherical housing **4**.

The annular member **1** is provided with a circular groove **10** at both sides, a plurality of internal gear teeth **11** at the inner surface, and two opposite eccentric pins **12** at the outer surface (see FIG. **1A**).

The power seat **2** is formed with a central chamber for receiving a motor **21** and a reduction gear **22**, two side chambers **2G** in each of which is mounted a battery casing **23** for receiving a battery **2H**, a plurality of axle seats **24** for supporting gear axle assembly **2C**, and two rollers **25** engaged between the power seat **2** and the grooves **10** of the annular member **1**. Further, the motor **21** is provided with an axle **26** on which is fixedly mounted a worm **27**. The worm **27** is engaged with the reduction gear **22** which is composed of a first gear **28**, a second gear **29**, a third gear **2A**, and a driving gear **2B**. The first gear **28** is meshed with the worm **27**, while the driving gear **2B** is engaged with the internal gear teeth **11** of the annular member **1**. The gear axle assembly **2C** is composed of a first axle **2D**, a second axle **2E**, and a third axle **2F** which are connected with the first gear **28**, the second gear **29**, and the third gear **2A** and the driving gear **2B**, respectively. Hence, the power produced by the motor **21** can be transmitted to the annular member **1**.

The lower hemispherical housing **3** is formed with two aligned holes **30** for engaging with the eccentric pins **12** of the annular member **1** and external threads **31** on its upper edge.

The upper hemispherical housing **4** is provided with internal threads (not shown) engageable with external threads **31** of the lower hemispherical housing **3**.

When in assembly, the power seat **2** is first mounted into the annular member **1** so that the driving gear **2B** of the reduction gear **22** is engaged with the internal gear teeth **11** of the annular member **1** and the rollers **25** are kept between the power seat **2** and the grooves **10** of the annular member **1**. Then, the annular member **1** together with the power seat **2** is disposed within the lower hemispherical housing **3** so that the eccentric pins **12** of the annular member **1** are engaged with the holes **30** of the lower hemispherical housing **3**. Thereafter, the upper hemispherical housing **4** is threadedly engaged with the lower hemispherical housing **3**.

When in use (see FIGS. **4** through **8**), the upper hemispherical housing **4** is disengaged from the lower hemispherical housing **3** and a battery **2H** is inserted into each battery casing **23**. As the motor **21** is turned on, the upper hemispherical housing **4** is engaged with the lower hemispherical housing **3**. Then, the motor **21** will rotate axle **26** which will in turn drive the worm **27**. The worm **27** will in turn drive the driving gear **2B** via the reduction gear **22**. Thereafter, the driving gear **2B** will drive the annular member **1** to rotate thereby rotating the toy sphere via the pin **12**. As the toy sphere meets with an obstacle (see FIGS. **4**, **5**, **6** and **7**), the toy sphere will be stopped and the power seat **2** will rotate along the internal gear teeth **11** of the annular member **1** to the uppermost position. Then, by means of the gravitational force and the weight of the power seat **2**, the annular member **1** will be turned over thus causing the toy sphere to go in other direction.

The invention is naturally not limited in any sense to the particular features specified in the forgoing or to the details of the particular embodiment which has been chosen in order to illustrate the invention. Consideration can be given to all kinds of variants of the particular embodiment which has been described by way of example and of its constituent elements without thereby departing from the scope of the invention. This invention accordingly includes all the means constituting

technical equivalents of the means described as well as their combinations.

I claim:

1. A toy sphere comprising:

an annular member having two planar sides provided with a circular groove at each of said sides, a plurality of internal gear teeth at an inner surface, and two opposite eccentric pins at an outer surface, said pins aligned in an axis spaced away and parallel from a center plane passing through said annular member and between said planar sides;

a power seat having at least one driven gear engaged with the internal gear teeth of said annular member and having a motor electrically connected with batteries;

an upper hemispherical housing having internal threads; and

a lower hemispherical housing having external threads engageable with the internal threads of said upper hemispherical housing and having two aligned holes rotatably engaged with the two opposite eccentric pins of said annular member.

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